

Hammerfest Storm

Name of person filling in this form

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Date Submitted

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Project Name: Hammerfest Storm tidal project

Company: Hammerfest

Project description:

Project Developer: Scottish Power Renewables

Technology Type: Tidal Turbine

Resource: Tidal

Project Scale: Ten 1MW devices (Installation 2013)

Installed Capacity: 10MW

Additional Description: The HS1000 tidal device is designed by Hammerfest Strom. The devices are placed on the seabed with a hub height of about 22 metres and a blade length of about 11 metres. The total height from the seabed to the top of the blade tip is approximately 33 metres. The minimum water depth of the site is 50m so there will be approximately 17m clearance allowing vessels to travel above the tidal array. Ten 1MW tidal devices will be installed and if these operate as expected, the demonstration array will generate around 30GWh per year.

Project Website: www.hammerfeststrom.com

Location: Sound of Islay, Orkney, Scotland; at a depth of approximately 50m. (Coordinates: 55° 51' 0" N, 6° 6' 0" W).

Process status: Consent for the Scottish Government gave the Sound of Islay Demonstration Tidal Array in March 2011. Further testing is planned for a single device in Orkney in 2011 and if successful the ten devices for the Sound of Islay would be manufactured in 2012 and installed in the Sound of Islay in 2013.

Licensing Information: A number of consents are required for the construction and operation of the Development. The Marine Scotland Licensing Operations Team (LOT) is leading the consents process.

SPR has applied for the following key consents:

Consent under Section 36 of the Electricity Act 1989 to construct and operate the tidal array, including all ancillary infrastructure; Licence under Section 5 of the Food and Environment Protection Act (FEPA) 1985 to deposit materials such as the turbine foundations and the

subsea cables on the seabed. Marine Scotland, which takes responsibility for protecting marine ecosystems, is the consenting authority for the FEPA licence; and Consent under Section 34 of the Coast Protection Act (CPA) 1949 in order to make provision for the safety of navigation in relation to the export cables.

Environmental survey issues:

Environmental webpage:

| Baseline and project effects studies: | | | | |
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| General description | | | | |
| Receptor | Study description including question and/or objective (several can be listed per receptor) | Design and methods (brief description) | Results (brief description) | Status (planned, underway, completed, with dates) |
| Physical environment | Potential impact to air quality | Desk based study | Air quality impacts are only likely to arise during construction / decommissioning of the onshore works, based on impact to sensitive receptors (i.e. points where the public are likely to be regularly present and exposed for a period of time). | Completed |
| Physical processes | Potential impact to coastal processes and environment | Desk based study | The impacts of the Development on the physical environment and coastal processes are deemed to be of negligible significance due to the limited scale of the footprint of the array, and the low amount of energy that is to be extracted during operation. | Completed |
| Marine Fish/Shellfish | Potential impact to Marine Fish and/or Shellfish | Data based upon Marine Scotland, DEFRA, CEFAS, UKOOA and the International Council for the Exploration of the Sea (ICES). However there have been no physical | The main potential impact on fish is considered to be the noise generated from construction activities, in particular from turbine placement and cable installation. The main noise production will be from DP installation vessels and workboats and the operation of machinery on the vessels themselves. The main potential receptor species identified is herring, a species of fish particularly sensitive to noise; however, sediments favoured as a spawning habitat by herring are | Planned |

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| | | surveys completed for fisheries within the Sound of Islay for the Development. | not present in the Sound of Islay. | |
| Benthic Ecology | Potential impact to Benthic communities | Surveys and desk based studies | The direct impact on habitats and species through the installation of foundation structures, subsea cables and associated infrastructure are considered to be of short term duration and negligible significance. | Completed |
| Anadromous Fish | Potential impact to Anadromous fish species | Surveys and Literature reviews | There is no evidence to suggest that anadromous fish use or transit the waters of the Sound of Islay. Furthermore, survey has shown that watercourses on Islay and Jura adjacent to the Development have limited potential to support anadromous fish populations. | Completed |
| Elasmobranchs | Potential impact to Elasmobranch fish species | Data based upon Marine Scotland, DEFRA, CEFAS, UKOOA and the International Council for the Exploration of the Sea (ICES). | Collision could theoretically impact basking sharks and although the potential magnitude of this impact is considered to be low, given the high importance of this species, the significance of this effect has been assessed as moderate. All other impacts have been assessed as being of negligible significance. | Planned |
| Ornithology | Potential impact to Ornithology species | Data based upon Marine Scotland, DEFRA, CEFAS, UKOOA and the International Council for the Exploration of the Sea (ICES). | Under the terms of the EIA regulations it is concluded that the likely effects of the proposed development on all bird species are not significant. The available information indicates that the Development will not, either alone or in combination, have a significant effect on any classified or proposed SPAs. Disturbance to important assemblages of birds is considered as negligible with appropriate mitigation in place through all phases of the development. | Planned |
| Commercial fisheries | Potential impact to Commercial | Consultation completed | Fishing for crustacean species such as velvet swimming crab, brown | Planned |

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| | fisheries stock | with local fisherman regarding the Development | crab, and lobster is practiced by approximately 10 fishing vessels, with concentrated effort occurring during the winter and spring months. Concerns from local fishermen focused on loss of fishing area and navigational issues relating to entanglement and loss of boats and equipment. (Navigation is considered within a separate Navigational Safety Risk Assessment). Impacts of the proposed Development are deemed to range between minor adverse and minor beneficial levels providing the appropriate mitigation measures are implemented. | |
| Terrestrial Ecology | Potential impacts to terrestrial ecology | Data based upon Marine Scotland, DEFRA, CEFAS, UKOOA and the International Council for the Exploration of the Sea (ICES). | Except for otters and terrestrial habitat loss, significance of effect on terrestrial and intertidal receptors is assessed as negligible or no significant effect during construction, operation (including maintenance), and decommissioning of the onshore elements of the Development. | Planned |
| Transport and Traffic | Potential disturbance to transport and traffic | Desk based study | The Sound of Islay has a number of ferry routes, which are of high importance to the local community. During construction, the Development could cause a relatively high level of disruption; however, this will be temporary, and with careful planning and mitigation, these effects can be reduced to minor / no significant effect. | Completed |
| Tourism, recreation and socio-economics | Tourism, recreation and socio-economics advantages | Desk based study | The Development will bring with it minor beneficial socio-economic benefits. A small number of local jobs may be created during the construction of the project, and there will be a temporary increase in local spend associated with the installation phase, as well as ongoing spend associated with operation and maintenance. | Completed |

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| Munitions and Military | Potential disturbances to Munitions and Military operations | Desk based study | The Development is located outside of any designated military areas and submarines are not expected to use the site. During construction there may be minor disruption to military vessels operating near the Sound of Islay in adjacent PEXAs; however, ongoing communication with the Defence Estates and subsequent scheduling of works at the tidal site will ensure coordination of any potentially conflicting activities. There are no known unexploded munitions within or near to the Sound of Islay. It is also unlikely that munitions from official disposal sites could migrate into the Sound of Islay, with the nearest site over 100 km away. | Ongoing |
| Cultural Heritage | Potential impact to Archeological assets | Archaeological assessment | All relevant cultural heritage assets known have been identified and the potential for unknown remains also discussed. Five distinct impacts of negligible to major significance have been identified. Mitigation has been outlined which is considered to completely mitigate residual impacts, and which has the potential to result in positive impacts in some cases. | Completed |
| Reports and papers | <ul style="list-style-type: none"> - When possible the files themselves can be made available in downloadable PDF format, alternatively links to the files or project website can be provided when available e.g. SeaGen. - Key papers on the areas addressed should be listed here | | | |
| Research projects | Past or on-going environmental research projects at the site | | | |

Monitoring and adaptive management

General description

| Receptor | Monitoring program description including question and/or objective (several can be listed per receptor) | Design and methods (brief description) | Results (brief description) | Status (planned, underway, completed, with dates) |
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| Elasmobranchs | Monitoring measures Elasmobranch fish species | | To manage potential impacts and inform mitigation post installation monitoring for elasmobranchs could be combined with marine mammal monitoring. Whilst no mitigation is planned at this stage of the Development, monitoring will allow the significance of collision risk to be continually assessed and if required, appropriate collision mitigation will be implemented. | Planned |
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